



**Training Proposal for:**  
**Northern California Solar Energy Association, Inc.**  
**Clean Energy Workforce Training Program (CEWTP)**

**Agreement Number: ET10-0605**

Panel Meeting of: January 29, 2010

ETP Regional Office: **San Francisco Bay Area**

Analyst: D. Woodside

**PROJECT PROFILE**

Contract  
Type: Priority/Retrainee

Industry  
Sector(s): Construction  
Green Energy

Counties  
Served: Statewide

Union(s): ☐ Yes ☒ No

**FUNDING DETAIL**

All funding will be under the American Recovery and Reinvestment Act (ARRA).

Program Costs	Support Costs	Total ETP Funding	In-Kind Contribution
\$211,920	\$14,700	\$266,620	\$133,310

**TRAINING PLAN TABLE**

Job No.	Job Description (by Contract Type)	Type of Training	Estimated No. of Trainees	Range of Hours		Average Cost per Trainee	Post-Retention Wage
				Class / Lab	CBT		
1	Priority/SB<100	Commercial Skills	120	24-200	0	\$1,696	\$13.63
				Weighted Avg: 61			
2	Priority/Retrainee	Commercial Skills	20	24-200	0	\$1,155	\$13.63
				Weighted Avg: 60			

**ETP Minimum Wage by County (Benchmark Wage):** \$14.87 for Alameda, Contra Costa, Los Angeles, Marin, Orange, San Francisco, San Mateo, Santa Clara, and Santa Cruz counties; \$14.64 for Sacramento County; \$14.30 for San Diego County; \$13.63 for Ventura County; and \$13.63 for all other counties.

**Health Benefits:** ☒ Yes ☐ No This is employer share of cost for healthcare premiums – medical, dental, vision.

**Used to meet the Post-Retention Wage?:** ☐ Yes ☐ No ☒ Maybe

Participating employers may use health benefits to meet the Post-Retention Wage.

Wage Range by Occupation	
Occupation Title	Wage Range
Solar Installer	
Solar System Designer	

**INTRODUCTION**

In this proposal, Northern California Solar Energy Association, Inc. (NorCal Solar) seeks CEWTP funding for retraining as outlined below:

Founded in 1975, NorCal Solar is a non-profit educational association whose mission is to accelerate the use of solar energy technology through training, advocacy, and the exchange of information. NorCal Solar is a membership-based association governed by an eight-member Board of Directors, with a six-member Board of Advisors. As a trade association, its member employers are primarily involved in green technology and provide jobs that transmit renewable solar energy. NorCal Solar is the northern California chapter of the American Solar Energy Society (ASES), a national organization dedicated to advancing the use of solar and other renewable energy sources.

NorCal Solar will partner with its training vendor, Solar Universe, Inc. (Solar Universe), which will provide all classroom and laboratory training through its Solar University educational division. Training will be conducted at the Solar University facility located in Livermore. In addition to training services, Solar Universe also offers residential and small commercial solar photovoltaic (PV) system design, installation, and maintenance services.

Under this proposal, 120 incumbent workers of small businesses with fewer than 100 employees (Job Number 1) and 20 workers of larger businesses (Job Number 2) will receive training to be Solar PV installers or Solar PV system designers.

NorCal Solar anticipates that retrainees will primarily be employees of small solar installation, electrical, and roofing contractors who need to increase their workers skills to capitalize on the expanding green marketplace. Retrainees will be individuals who have never received formal classroom/laboratory training as solar installers or be tradespersons who work for electrical, roofing, and other building contractors who have never been trained in solar installation. The retention period may be 200 hours within 365 days, consistent with the Panel's guidelines for CEWTP.

By retraining these workers, participating employers will be more likely to retain workers who are easily affected by downturns in the housing construction market. With workers skilled in the most recent solar technologies, participating employers can expand their solar business and become more competitive in the green economy.

## **PROJECT DETAILS**

The Solar University training facility was custom designed by solar industry experts and constructed specifically for conducting solar PV installation training. It was built to replicate field installation scenarios with a strong emphasis on worker safety and job site best practices. The training facility in Livermore consists of a 3,000 square foot warehouse space with a 600 square foot classroom structure built inside the warehouse. The classroom structure is built to code and has a functional pitched roof which serves as a training surface. The primary instructor holds a California C-46 Solar Contractor license and is a North America Board of Certified Energy Practitioners (NABCEP) Certified Installer as well as a NABCEP Certified Instructor. The second instructor is a journeyman electrician with seven years of solar system design, bidding, and installation experience.

All trainees will complete the initial 40 hour class/lab technical training comprised of lecture and hands-on "system builds" to accelerate the trainee's knowledge of theory and practical skills set. Solar University conducts training using a 1:8 trainer to trainee ratio to maximize the program's effectiveness. The course curriculum is based on the NABCEP learning objectives for the Entry Level Certificate of Knowledge. Currently, Solar University issues a proprietary Certificate of Completion to all successful program completers. It is expected that retrainees at the entry-level of their occupations will need most or all of this basic training.

In addition, Solar University is in the process of receiving certification from the Interstate Renewable Energy Council and NABCEP to offer an Entry Level Certificate of Knowledge preparation segment (24 classroom hours) and to administer the NABCEP Entry Level exam. It is expected that retrainees at the journey level will proceed directly to this 24-hour preparation course. Once Solar University is certified, trainees will have the opportunity to complete the additional 24 hours of classroom training and, if successful in the exam, will be awarded the Entry Level Certificate of Knowledge for solar PV installer granted by the NABCEP.

## **Marketing and Recruitment**

NorCal Solar will promote training opportunities to its employer members through direct email correspondence, seminars, and industry conferences. Additionally, NorCal Solar will use its web presence and that of the national ASES to reach out to employers in need of retraining their workers. Solar Universe will also participate in employer outreach processes through its existing print, internet ad word, and email marketing campaigns.

NorCal Solar reports that employers training for expansion into today's solar marketplace face a number of budgetary and worker safety challenges. Effective Solar PV installer training requires a wide variety of equipment and tools, as well the space and substrates necessary to design and construct demonstration arrays. Additionally, solar modules generate direct current electricity whenever they are exposed to ambient UV light and they are typically installed on rooftops. As a result, there are a variety of inherent risks that need to be addressed through effective class/lab training.

The small businesses most likely to participate in this program do not have the facilities, equipment, or expertise to conduct the training that Solar Universe can provide. However, since trainees will be attending training on company time, each employer will be making an in-kind contribution of trainee wages and benefits while the trainee is attending this training.

All participating employers will be screened for compliance with CEWTP guidelines on eligibility prior to trainee enrollment.

### **RECOMMENDATION**

Staff recommends approval of this project under the joint ETP/CEC Clean Energy Workforce Training Program.

### **DEVELOPMENT SERVICES**

N/A

### **ADMINISTRATIVE SERVICES**

NorCal Solar will retain Solar Universe of Livermore to perform a portion of the project administration for an amount to be determined and not to exceed 13% of payment earned.

### **TRAINING VENDORS**

Solar Universe has also been retained to provide all training for an amount to be determined based on the number of trainees and actual training hours provided under the proposal.

**Exhibit B: Menu Curriculum****Class/Lab Hours**

24- 200

**Commercial Skills**

Photovoltaic (PV) System Markets and Applications  
Fall Safety Basics  
Electricity Basics  
Solar Energy Fundamentals  
PV Module Fundamentals  
System Components  
PV System Sizing Principles  
PV System Electrical Design  
PV System Mechanical Design  
Performance Analysis, Maintenance, and Troubleshooting  
Site Survey and Shading Analysis  
Multiple Solar System Installations (full wiring, conduit panels, racking)  
Working with Micro Inverters and String Inverters  
Tile Cutting, Roof Penetrations, and Racking  
Ground Mounts  
Solar Tools Workshop: Pulling Wires, Bending Conduit, Combiner Boxes  
Load Center Tie-In  
Project Staging

Note: Reimbursement for all training is capped at 200 total training hours per trainee, regardless of delivery method.
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## Participating Employers in Retrainee Multiple Employer Contracts

Contractor's Name: Northern California Solar Energy Association, Inc. CCG No.: ET10-0605

Reference No: 10-0211

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PRINT OR TYPE IN ALPHABETICAL ORDER

Company: ARCO Energy Technology

Address: P.O. Box 1881

City, State, Zip: Oakdale, CA 95361

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 12-14

Total # of full-time company employees worldwide: 100

Total # of full-time company employees in California: 80

Company: Akeena Solar

Address: 605 University Avenue

City, State, Zip: Los Gatos, CA 95032

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 15-18

Total # of full-time company employees worldwide: 130

Total # of full-time company employees in California: 130

Company: American Solar

Address: 2 Marine Way

City, State, Zip: Stinson Beach, CA 94970

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 2-3

Total # of full-time company employees worldwide: 10

Total # of full-time company employees in California: 10

Company: Fidelity Roof Company

\*Only for employees in the Solar Division

Address: 1075 40<sup>th</sup> Street

City, State, Zip: Oakland, CA 94608

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 8-9

Total # of full-time company employees worldwide: 60

Total # of full-time company employees in California: 60

## Participating Employers in Retrainee Multiple Employer Contracts

Contractor's Name: Northern California Solar Energy Association, Inc. CCG No.: ET10-0605

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Company: REC Solar

Address: 167 Commercial Street

City, State, Zip: Sunnyvale, CA 93643

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 18-20

Total # of full-time company employees worldwide: 145

Total # of full-time company employees in California: 140

Company: SPG Solar Inc.

Address: 20 Levioni Court

City, State, Zip: Novato, CA 94949

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 15-18

Total # of full-time company employees worldwide: 120

Total # of full-time company employees in California: 120

Company: Sun Light & Power

Address: 1035 Folger Avenue

City, State, Zip: Berkeley, CA 94710

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 6-8

Total # of full-time company employees worldwide: 55

Total # of full-time company employees in California: 55

Company: Sungevity

Address: 1625 Shattuck Avenue, Suite 210

City, State, Zip: Berkeley, CA 94709

Collective Bargaining Agreement(s): None

Estimated # of employees to be retrained under this Agreement: 3-4

Total # of full-time company employees worldwide: 20

Total # of full-time company employees in California: 20